

In the Claims

1. (Currently Amended) A method of making a nanoporous structure, said method comprising:
 - (a) combining first and second self-assembling molecules under conditions sufficient for said first and second molecules to self-assemble into an ordered composite structure of said first and second molecules **held together by non-covalent interactions**, wherein said first molecules include a cross-linking functionality that is lacking in said second molecules;
 - (b) covalently bonding said first molecules via said ~~covalent~~ **bonding cross-linking** functionality to produce a stabilized composite structure; and
 - (c) separating said second molecules from said stabilized composite structure to produce said nanoporous structure.
2. (Currently Amended) The method according to Claim 1, wherein said nanoporous structure has ~~a uniform porosity~~, **two or more nanopores**.
3. (Original) The method according to Claim 2, wherein said two or more nanopores are uniform and regularly positioned in said structure in a regular pattern.
4. (Original) The method according to Claim 1, wherein nanopores of said nanoporous structure have an inner diameter that does not exceed about 5 nm.
5. (Original) The method according to Claim 1, wherein said structure is a sheet.
6. (Original) The method according to Claim 1, wherein said structure is a nano-object.
7. (Original) The method according to Claim 1, wherein said first and second self-assembling molecules are linear molecules.

8. (Original) The method according to Claim 7, wherein said first and second linear self-assembling molecules have a length of from about 4 to about 50 nm.
9. (Original) The method according to Claim 1, wherein said first molecule comprises a single cross-linking functionality.
10. (Original) The method according to Claim 1, wherein said first molecule comprises two different cross-linking functionalities.
11. (Original) The method according to Claim 1, wherein said first and second molecules are organic molecules.
12. (Original) The method according to Claim 1, wherein said separating step (c) comprises immersing said stabilized composite structure in a solvent for said second molecules so said second molecules separate from the remainder of said structure.
13. (Original) A nanoporous structure produced according to the method of Claim 1.
14. (Original) The structure according to Claim 13, wherein said structure is a sheet.
15. (Original) The structure according to Claim 13, wherein said structure is a nano-object.
16. (Original) An article of manufacture that includes a nanoporous structure according to Claim 12.
17. (Original) A kit for use in a producing a nanoporous structure, said kit comprising:

(a) first and second self-assembling molecules that self-assemble upon combination into an ordered composite structure of said first and second molecules, wherein said first molecules include a cross-linking functionality that is lacking in said second molecules; and

(b) instructions for use in practicing the method of Claim 1.

18. (Original) The kit according to Claim 17, wherein said first and second self-assembling molecules are linear molecules.

19. (Original) The kit according to Claim 18, wherein said first and second linear self-assembling molecules have a length of from about 4 to about 50 nm.

20. (Original) The kit according to Claim 17, wherein said first and second molecules are organic molecules.

21. (New) The method according to Claim 1, wherein said first and second molecules share a common back-bone structure.

22. (New) The method according to Claim 21, wherein said nanoporous structure comprises uniform and regularly positioned nanopores in a regular pattern.

23. (New) The kit according to Claim 17, wherein said first and second molecules share a common back-bone structure.